MISSISSIPPI CANYON 252

ADDENDUM: ASSESSMENT PLAN: ANALYSIS OF 2012 COLONY PHOTOGRAPHIC CENSUS DATA COLLECTED UNDER THE ASSESSMENT PLAN FOR BIRD COLONY AERIAL PHOTOGRAPHY-2012

Approval of the *Assessment Plan for Analysis of 2012 Colony Photographic Census collected under the Assessment Plan for Bird Colony Aerial Photography-2012* is for the purposes of obtaining data for the Natural Resource Damage Assessment. Each party reserves its right to produce its own independent interpretation and analysis of any data collected pursuant to this work plan.

This plan will be implemented consistent with existing trustee regulations and policies. All applicable state and federal permits must be obtained prior to conducting work.

The trustees have developed a preliminary conceptual model of the DWH release, potential pathways and routes of exposure, and potential receptors. This preliminary model has informed the trustees' decision to pursue the studies outlined in the work plan. By signing this work plan and agreeing to fund the work outlined, BP is not endorsing the model articulated in the work plan.

Kevin D. Reynolds — 10/23/2012

Department of the Interior Trustee Representative — Date

Louisiana Trustee Representative — 10/30/2012

Date

Joyce Mulley — 10/23/2012

BP Representative — Date

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1. Introduction

Following the *Deepwater Horizon* Oil Spill, BP and state and federal Trustees developed several Natural Resource Damage Assessment (NRDA) work plans to evaluate potential oil exposure and oil related injuries to various avian guilds in the Gulf of Mexico. Assessment activities were identified by BP and the Trustees to augment ephemeral pre-assessment data collection evaluating potential exposure and injury to colonial waterbirds (seabirds such as gulls, terns, and pelicans; and wading birds such as egrets and herons). Colony photographs of the majority of seabird and coastal wading bird colonies in the Gulf of Mexico in 2012 (collected under an Addendum to Bird Study #2: *Assessment Plan for Bird Colony Aerial Photography – 2012*) provide a record of bird presence and behavior during the study period.

As a follow up to the May/June photographic censuses in 2010 and 2011, aerial surveys of active seabird and coastal wading bird colonies in Louisiana, Alabama, Mississippi, and the Florida panhandle were also conducted in May and June 2012. Colonies were photographed in multiple frames using high resolution digital cameras equipped with telephoto lenses. Similar to previous years, these photographs are sufficiently detailed to allow identification of individual species. Colony locations, altitude, track line, and photographic frame numbers were recorded on a computer/GPS system.

II. Study Objective

The objective for this study, *Addendum: Assessment Plan: Analysis of 2012 Colony Photographic Census data collected under the Assessment Plan for Bird Colony Aerial Photography-2012* ("Plan") is to analyze the photographic colony census data collected in May and June 2012.

Analysis of 2012 photographic colony census data will follow the same protocol as analysis of 2010 and 2011 data (See Appendix A). Photographs will be evaluated and appropriately marked ("dotted") using image analysis software developed by Media Cybernetics®. Results will consist of screen captures of dotted images and summary statistics of those images. Results of these analyses will also include:

1) Total number of individuals of each species at each colony.

2) Total number of "sites" (nest or territorial bird or pair) of each species at each colony throughout the survey area.

3) Categorized assessment of Brown Pelican nests at each colony throughout the survey area. Categories may include: well-built nest, nest with chicks, poorly-built nest, abandoned nest, empty nest, and brood (chicks not attended by an adult and outside an obvious nest).

4) Total number of chicks of each species at each colony in the central area (Atchafalaya Bay, LA to Apalachicola, FL).

III. Data Sharing

Copies of all data processed in accordance with this Plan, including copies of the draft results (spreadsheets, etc.) identified in items 1- 4 of the Objective Section will be provided to BP and its representatives and the Louisiana Oil Spill Coordinator's Office (LOSCO) within six months from the date that the Contractor receives the authorization to proceed with this project. BP will be notified when such authorization occurs. A draft report comparing results from 2010, 2011, and 2012 surveys will be provided within 60 days thereafter.

The Parties agree to jointly conduct quality assurance/quality control review, including data validation, on the draft results, with the goal of reaching consensus on the data set.

All materials associated with the collection or analysis of samples under these protocols or pursuant to any approved work plan, including any remains of samples and including remains of extracts created during or remaining after analytical testing, must be preserved and disposed of in accordance with the preservation and disposal requirements set forth in Pretrial Orders ("PTOs") # 1, # 30, #35, # 37, #39 and #43 and any other applicable Court Orders governing tangible items that are or may be issued in MDL No. 2179 IN RE: Oil Spill by the Oil Rig "DEEPWATER HORIZON" (E.D. LA 2010). Destructive analytical testing of oil, dispersant or sediment samples may only be conducted in accordance with PTO # 37, paragraph 11, and PTO # 39, paragraph 11. Circumstances and procedures governing preservation and disposal of sample materials by the trustees must be set forth in a written protocol that is approved by the state or federal agency whose employees or contractors are in possession or control of such materials and must comply with the provisions of PTOs # 1, # 30, # 35, 37, #39 and #43.

IV. Budget

The cost for this 2012 Plan is $ 347,770, plus associated Department of the Interior salary costs. The Parties acknowledge that this budget is an estimate, and that actual costs may prove to be higher. BP's commitment to fund the costs of this work includes any additional reasonable costs within the scope of this approved work plan that may arise. The Trustees will make a good faith effort to notify BP in advance of any such increased costs.

APPENDIX A

SOP for Analysis of Colony Photographic Census data collected under the Work Plan for Aerial Surveys and Photographic Census for Birds

1. Identify breeding colony or roost site location by overlaying aircraft tracklines and aerial photographs with satellite images in Google Earth. Record the latitude and longitude at the geographic center of each location. Record Location Name, if known, and further identify the location using dotter initials and a sequential number; e.g., first colony dotted by Joe Louis Smith = JLS 001. "Dotting" refers to identification of a bird image using image analysis software developed by Media Cybernetics®, which renders screen captures of dotted images and corresponding image statistics. Cross-reference location identifiers from year to year.

2. Using the ranges of photograph frame numbers recorded at each location, breeding colony, or roost site as a guide, all associated photographs per location will be reviewed, and generally the highest quality photographs for counting will be selected (i.e., photographs where the relevant birds and nests are most clearly visible). However, the selection process may be influenced by how much can be observed in each photograph. For example, a photograph documenting a larger area might be preferable to a photograph that was slightly sharper but shows less overall area. Counting (nests, sites, and birds for all species present) requires that best judgment be used, but most decisions are obvious. Counts can be revisited as needed since all of the decisions are digitally recorded.

3. Using Image-Pro Plus 6.3 or Image-Pro Express software (http://www.mediacy.com published by Media Cybernetics), determine counts of nests, sites, and birds for all species present for as many images as are needed to achieve complete coverage of all locations. Annotate overlapping images with borders to delineate count areas as needed to prevent double-counting. Using the software, manually assign each nest, site, and bird with an appropriate category symbol. Typical category symbols include:

    a. Nest categories: Well-built (with attending adult); poorly-built (typically pre egg-laying); with chicks and attending adult; with chicks but without attending adult; empty; and abandoned;

    b. Site categories: Territorial site (little or no nesting material); unknown site (potential breeding site, but cannot be categorized due to photo quality);

    c. Bird categories: Adults marked as "Birds" include apparent mates adjacent to a bird attending a nest as well as other birds not associated with a breeding site. Birds in increased densities in non-breeding habitat are categorized as "roosting birds". For the central area (Atchafalaya Bay, LA to Apalachicola, FL), also count individual chicks and nestlings, whether still in a nest or wandering away from nests.

4. For bird species other than Brown Pelicans, only a generic "Site" category will be used to represent all potential nests and sites. Additional nest categories cannot be as consistently identified for other species because of: 1) smaller size; 2) scrape-nesting; and/or 3) partial concealment by vegetation. Bird categories as identified for Brown Pelicans will be similar for other species.

5. Save a screen capture of each counted image.

6. Record count data for each counted image in Access Database.

7. This effort will be conducted by personnel with expertise in aerial photographic survey and colony counting work. If additional assistance is required, experienced, primary personnel will train and oversee any needed assistants. Because all counting activity is digitally recorded, decisions regarding the classification of birds and nests can be reviewed at any time.